Ringo
A percussive installation

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8. ABSTRACT
The RINGO project is a real-time computer-activated sound installation
designed with real (not synthesized) percussion, adaptable to a
variety of environments and responsive to user interaction.

1. INTRODUCTION
RINGO consists of 120 different sound objects. Each is a unique
acoustical device activated by a specially designed electro-
mechanical control system. The sound objects are made of
various materials such as fine woods, metal and rubber.
The installation is specifically designed to be flexible and
sensed in its environment. The spatial distribution of the sound objects
within the room is essential, because the human ear perceives
sound from above, below, in the front and in the back rather
differently, and since the audience can walk around freely, a
multitude of acoustical illusions are the result.
RINGO has been programmed in such a way that it never repeats
itself. Based on its unique "RING" architecture, a set of pre-set
parameters is produced each time a cell is scanned, so the
permutations are infinite.

2. DESIGN CRITERIA
The idea behind the project was to create a piece which would
exist in its environment but would not be disturbing for either
the audience passing by or the people working near RINGO all
day. It should be interesting to listen for an extended
period of time.
Simultaneously, it should reflect its concept to people just
walking by. The whole project should be extremely low budget
and construction-completion within four weeks time. The
installed installation site was the balcony of the historic Shaffy
Theater in Amsterdam, four meters square in width, twenty
meters high.
Perception was chosen for the RINGO installation because the
noise levels could be modulated and thus avoid the
"beethovenian" effect. Real percussion sounds were selected
because of their subtle variations in timbre, and with the whole
installation under microprocessor control, a quality in timing and
structure could be achieved. One crucial point was to arrange a
strategy for the ever-changing structure playing over a whole
day's period, with people coming in at irregular times. In some
way it had to be human interactive or responsive to certain
stimulation or stimulus.

3. HARDWARE
The RINGO hardware consists of three major parts: the
instruments, the electromechanical parts and the electronic
drivers. All the RINGO components were custom-designed and
assembled, because there was no space available until just before the actual installation and performance.
The instruments were grouped in two clusters, each having the
instrument and the frame. The frames were grouped in two verticals
and hanging from the ceiling through six floors surrounding the
installation. Each frame was similar but different: three metal
xylaphones were, about wooden cylinders, three wooden
xylaphones, and one stainless-steel object.
Beneath each object a motor with a plunger is mounted, and a
short electrical impulse (76 milliseconds, 17 volts, 450
milliseconds) makes the plunger hit the object, causing the
plunger to fall back immediately after hitting the object, ready to
strike again. Each object has its own power line. A Single Board
Computer card with a Motorola 6800 processor is used to control a
"VISA" (6522) port to which a daughter is connected. The frames
were constructed in such a way that the installation can be
completed within two hours.

4. SOFTWARE
Because of the very limited amount of time available, a structure
had to be as resonable simple. The principles of which were implemented in the form of an intuitive "RING" architecture.
Only two instructions are available: generate a random number

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since its initial successful presentation in the Stadly Theatre in Amsterdam, RINGO has been active at the New Music Festival in Middelburg, the Musica Nocturna in The Hague, and at the Stedelijk Museum for Modern Art in Amsterdam (where the guests were observed mixing coffee to activate RINGO for five weeks).

1. THE DESIGNERS

The whole RINGO software was designed and created by Triplop (Remi Demuynck Productions). The RINGO software was designed and implemented by Floris van Maanen of Diagram Kielitzup. At present they both work and live in Amsterdam and are involved in various projects in the field of art and technology.

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